
NIH...Turning Discovery Into Health

Progress in Heart, Lung, and Blood Research



Congenital Heart Disease

The heart is the first organ to form and begin working in humans, growing from a few cells to a four-chambered organ in just a few weeks after a baby is conceived.

More than two decades of research have told us a lot about how normal heart development occurs, and new diagnostic tools such as fetal echocardiography allow doctors to find heart defects during pregnancy. In 1950, a child born with a congenital heart defect had only a 20 percent chance of surviving. Today, most children who have complex heart defects survive to adulthood and can enjoy active, productive lives.

Basic research funded by the National Heart, Lung, and Blood Institute has pinpointed several genetic errors, or combinations of errors, that lead to heart malformations. One is called tetralogy of Fallot, the most common cause of “blue-baby syndrome.” Snowboarder Shaun White — who won Olympic gold medals in 2006 and 2010 — had surgery for this condition as an infant, a testament to the success of finding and fixing inborn heart defects early.

Unfortunately, though, many adults who survive congenital heart disease still face challenges. They are at higher risk for heart failure, pulmonary hypertension, and fatal heart rhythm abnormalities. Recognizing the importance of congenital heart disease as a chronic condition, the NHLBI-funded Pediatric Heart Network is following the health and outcomes of children with congenital heart disease over time to identify potential barriers in their transition to healthy adulthood.

Today, survival from congenital heart disease is commonplace. Nevertheless, ongoing NHLBI-funded studies aim to further improve the quality of life for adults with these conditions.

Imagine the Future ...

Gene tests identify those at risk for future complications, so that people of all ages who live with congenital heart disease have personalized treatment plans — medicines, surgery, and lifestyle changes — tailored to their individual risk profiles.

Customized stem cells delivered before birth to fetuses with congenital heart defects grow into new heart valves or pumping chambers.

The NIH's National Heart, Lung, and Blood Institute provides global leadership for research, training, and education programs to promote the prevention and treatment of heart, lung, and blood diseases and enhance the health of all individuals so that they can live longer and more fulfilling lives.



National Heart, Lung, and Blood Institute



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